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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,830	01/17/2001	Jun Fujita	06761.0040	4920

22852 7590 04/29/2003

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EXAMINER	
RO, BENTSU	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 04/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	09/760,830	FUJITA, JUN	
	Examiner	Art Unit	
	Bentsu Ro	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachm nt(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)

SECOND OFFICE ACTION ----- A FINAL REJECTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 5, 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over **Abels et al US Patent No. 3,870,935.** (This is a new reference.)

Applicant's invention appears to be a parallelly feed drive mechanism for a machine tool, however, the claims are broad enough to cover other drive mechanisms, including a forklift truck of Abels. The following chart compares the claimed subject matter with Abels et al teaching.

The claims:	**Abels et al teaching:**
Claim 1. (And similar claim 5.) A position control method for feed drive equipment	Driving a fork-lift truck is a position control, for example, driving a fork-lift truck for docking/undocking of merchandises; the feed drive equipment thus reads onto the fork-lift truck;
in which a plurality of feed drive mechanisms disposed in parallel for feeding a movable body are individually driven by servo motors,	Fig. 3 shows two motors for driving the respective wheels W_1 and W_2 (see Fig. 1), thus, the motors and the wheels are "a plurality of feed drive mechanisms"; the motors have feedback controls, therefore, they are servo motors; the motors as well as the wheels are electrically and mechanically arranged in parallel as can be seen from Figs. 1 and 3; the movable body reads onto the body of the fork-lift truck; further, each motor is individually driven by its own pulse generator 32 or 34;
the position control method comprising:	

determining torque of the servo motors; and	the pulse generators 32, 34 determine the motor torque based on a command (not shown) and the sensed current value from the current sensing resistor 41; **alternatively**, the sensor 40 determines the width of the pulses from the pulse generators 32, 34 and generates a polarity signal and an amplitude signal; the polarity signal tells which motor is running faster than the other motor; the amplitude signal tells the difference of torque between these two motors; see column 8, lines 41-46;
correcting position commands of at least one servo motor in dependence on the determined torque	the summing amplifier 42 corrects the current to the motors, which consequently corrects the position of the motors based on the current or torque; (examiner's note: current generates a force, the force applies to an arm to produce a torque, thus the current of a motor is related to a torque of the motor);
so that the servo motors have matching torque.	when the vehicle goes straight, the current to both motors must be equal; when the vehicle goes in a curvature motion, one motor must match another motor for a differential torque; in both cases, the servo motors have matching torque.

Claim 4. (And similar claim 8.) A position control method for feed drive equipment according to claim 1, wherein a value of a torque command to be input to a current controller of each servo motor is determined as the torque of the servo motor.

The pulse generators receive a command (not shown) and generate a desired width of the pulse, thus, the current controller reads onto the pulse generators 32, 34;

alternatively, a current command can also read onto the output of summing amplifier 42 because the summing amplifier 42 controls the width of the pulse current in a corrective manner.

3. Claims 2, 3, 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abels et al.

The subject matters of claims 2, 3, 6, 7 are not shown by Abels et al. However, the current (or torque) control of one motor to the other motor is relative. Thus, a reference torque can be set at the average value of the two motors so that both motors can be controlled simultaneously. Alternatively, one motor torque can be set as a reference and the other motor is controlled relative to the one motor.

In view of the foregoing reasons, it would have been obvious to a skilled person in the art to set an average torque value as a reference (claims 2 and 6) and controls both motors based on this average torque, or alternatively, one motor torque value can be set as a reference and controls the other motor torque based on the one motor torque value (claims 3 and 7) to achieve the same subject matter as claimed.

4. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CAR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CAR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication should be directed to Bentsu Ro at telephone number 703 308-3656.

April 24, 2003

Bentsu Ro
Primary Examiner